



Total Maximum Daily Loads for Indicator Bacteria, Project I – Beaches and Creeks in the San Diego Region

**Public Workshop
January 11, 2006**

Today's Topics

1. Presentation on Watershed Modeling (Tetra Tech)

➤ Q/A

2. Presentation on Technical Approach to TMDL Calculations

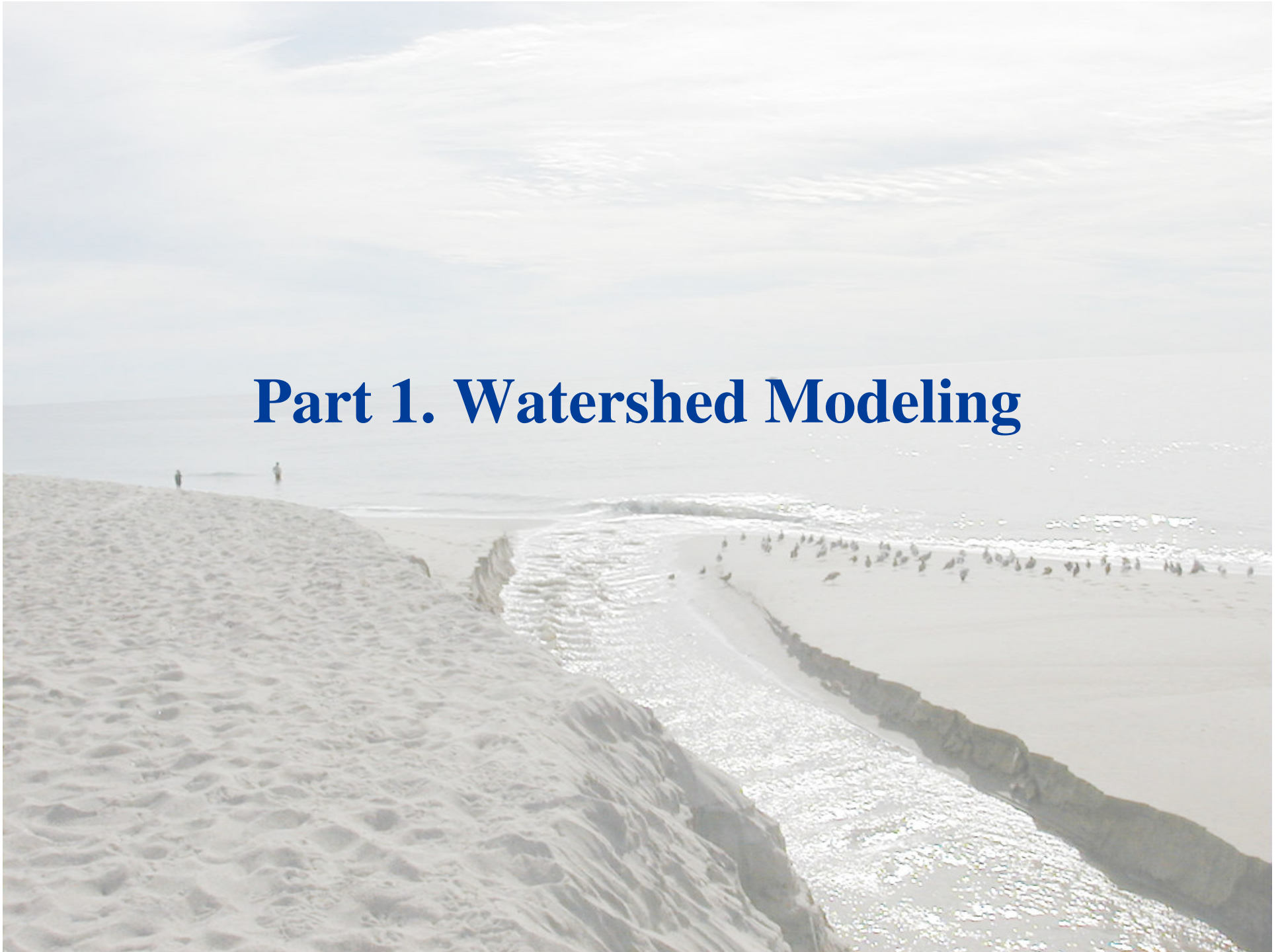
➤ Q/A

3. Presentation on Implementation Plan

➤ Q/A

4. Remainder: More time for questions on all topics

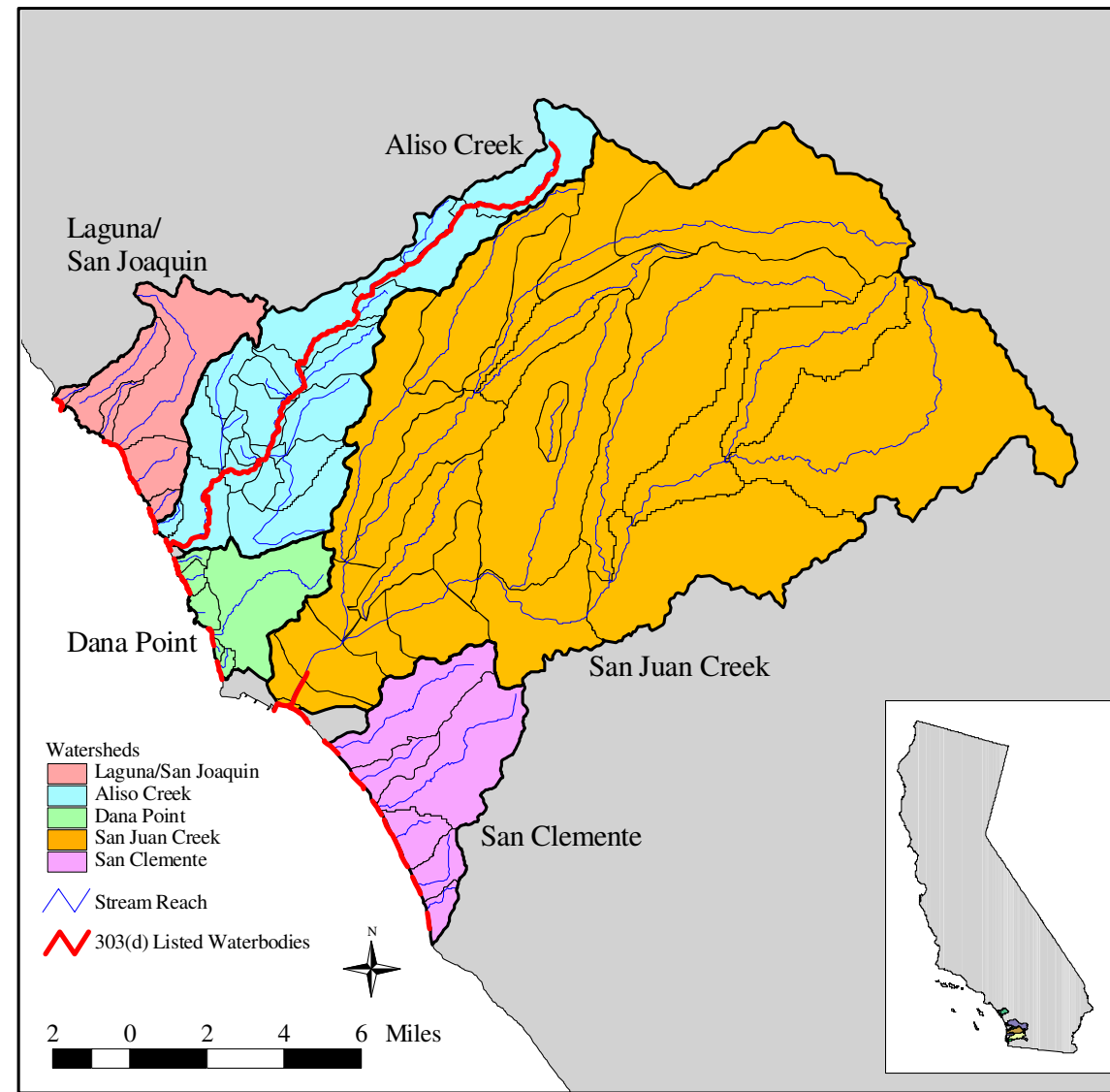
Part 1. Watershed Modeling



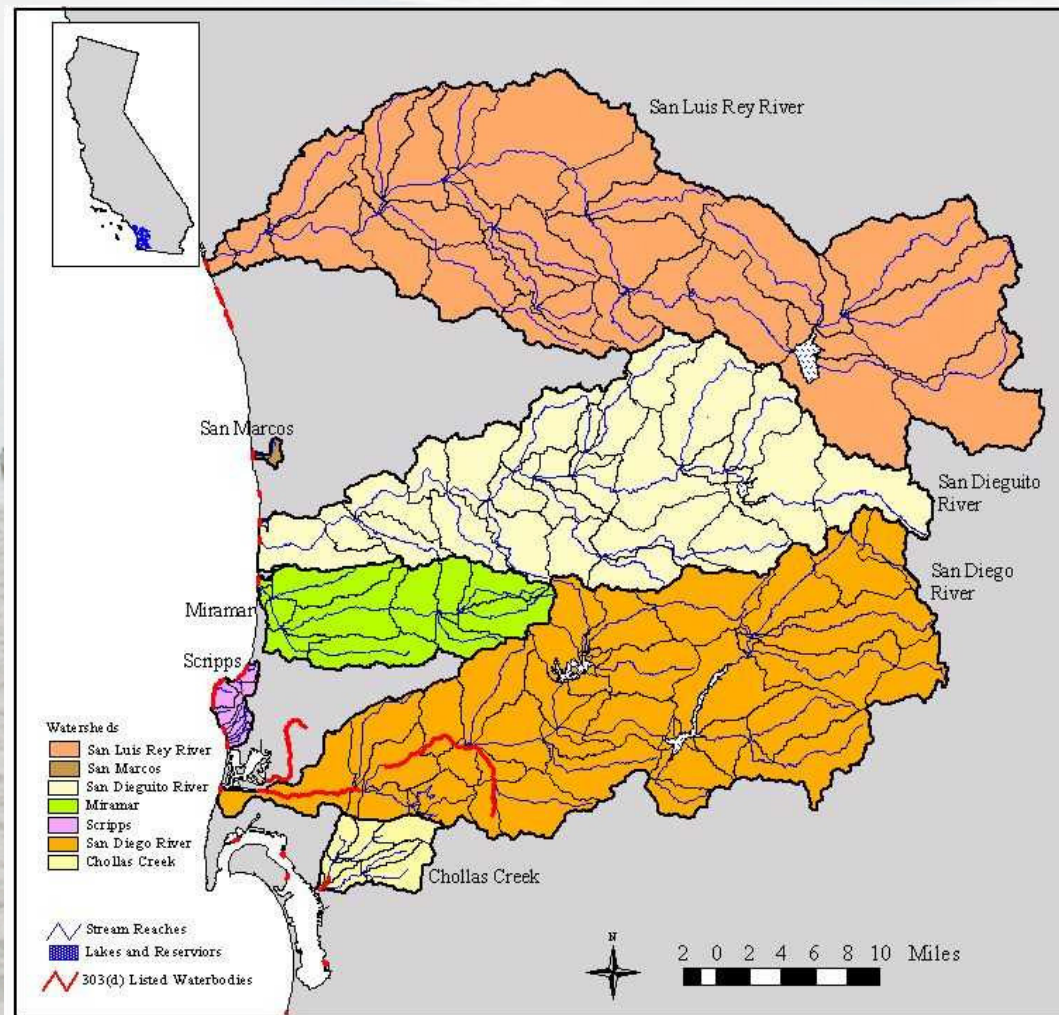
An aerial photograph of a vast, light-colored sand dune in the foreground, showing numerous footprints. To the right, a wide beach stretches towards the ocean, where a large group of birds, likely gulls, is gathered. Two small figures of people are visible on the dune's edge. The sky is filled with soft, white clouds.

Part 2. Technical Approach to TMDL Calculations

Project Scope

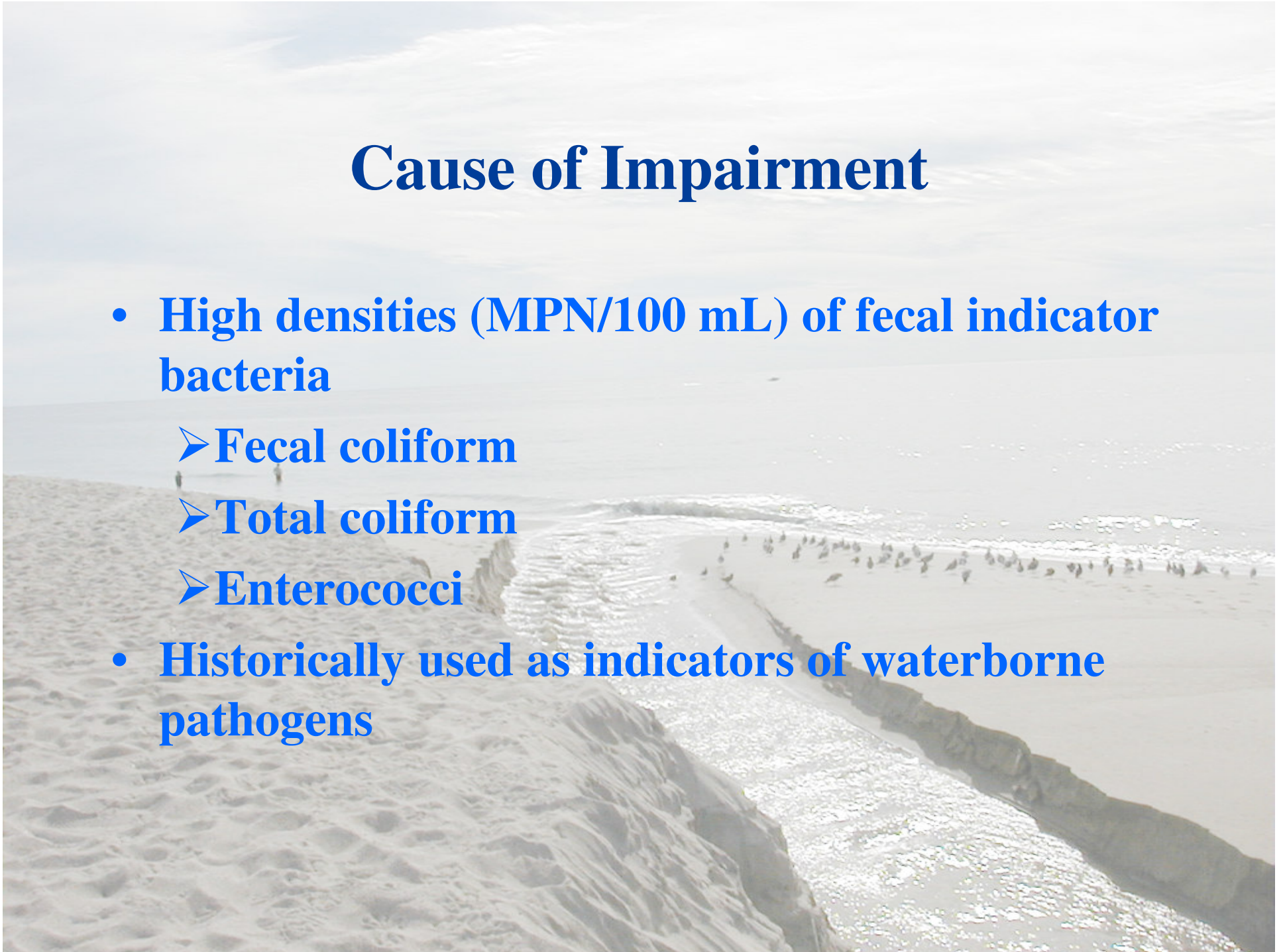


Project Scope



Cause of Impairment

- High densities (MPN/100 mL) of fecal indicator bacteria
 - Fecal coliform
 - Total coliform
 - Enterococci
- Historically used as indicators of waterborne pathogens



Bacteria Water Quality Objectives

- Ocean Plan: Fecal Coliform, Total Coliform and Enterococci objectives for coastal shorelines
- Basin Plan: Fecal Coliform, Total Coliform, Enterococci, and *E.Coli* objectives for inland surface waters and enclosed bays and estuaries
- Water quality objectives have 2 components
 - single sample maximum
 - geometric mean

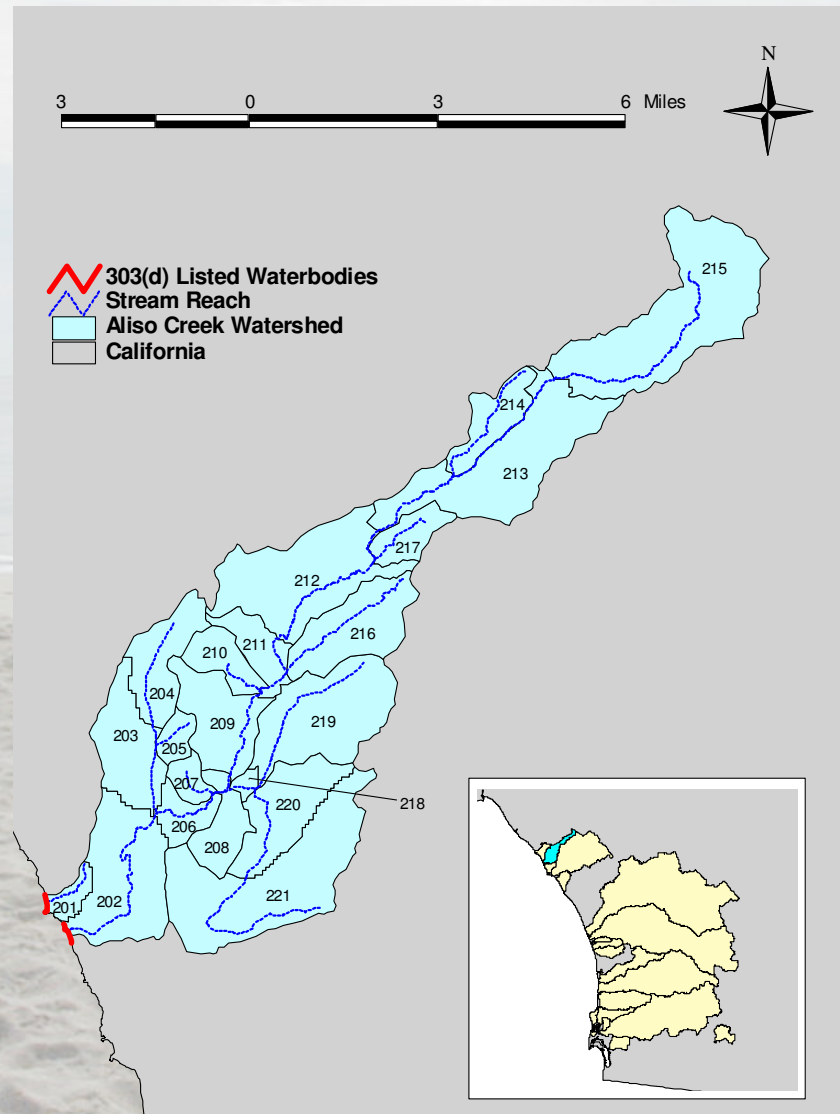
TMDL Approach

- Two modeling platforms to calculate assimilate capacities of impaired waterbodies under two distinct hydrological conditions
 - Wet weather (0.2" of rain + 72 hours)
 - Dry weather



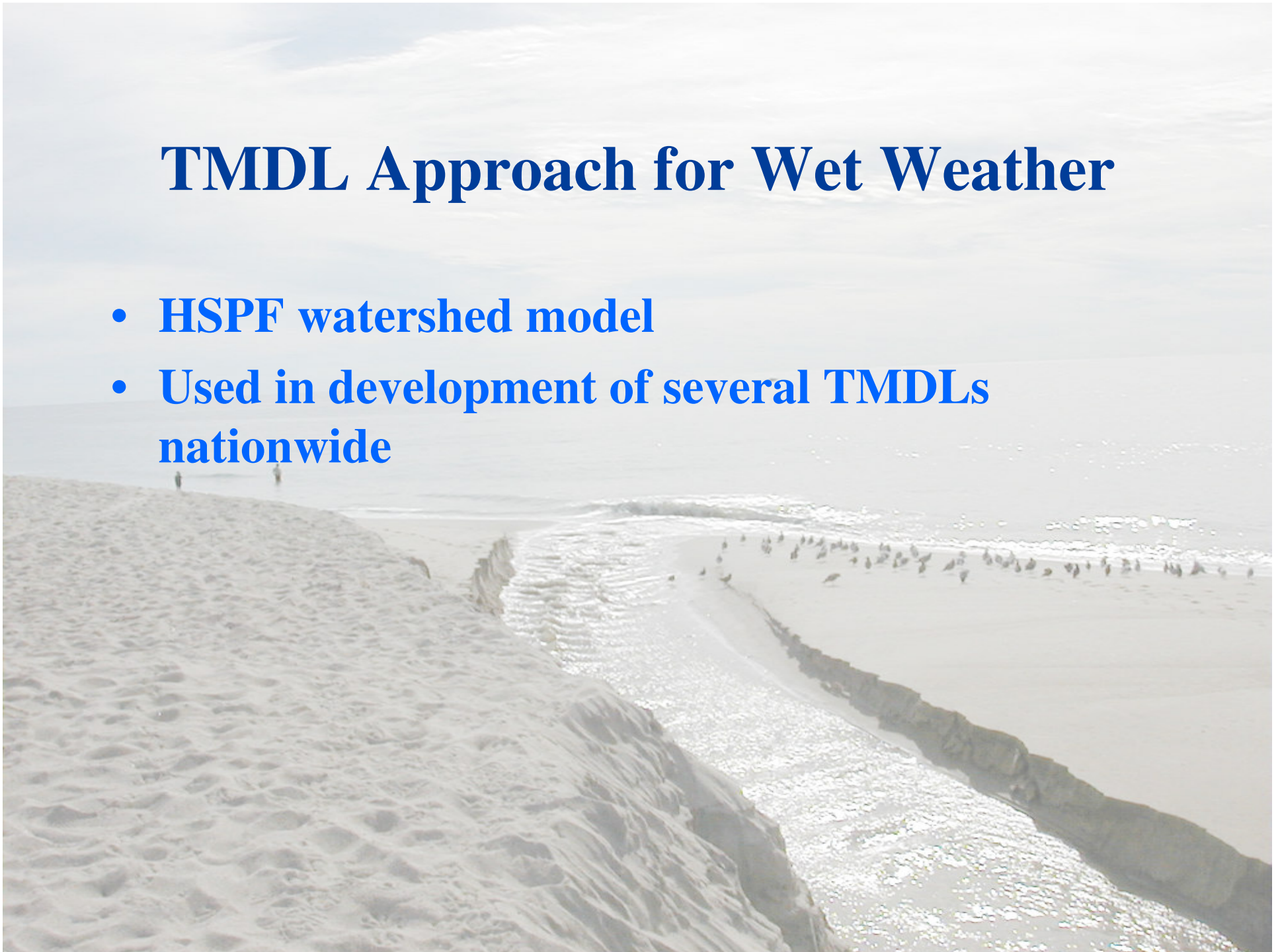
Critical Point

- 1 TMDL per watershed per pollutant



TMDL Approach for Wet Weather

- HSPF watershed model
- Used in development of several TMDLs nationwide

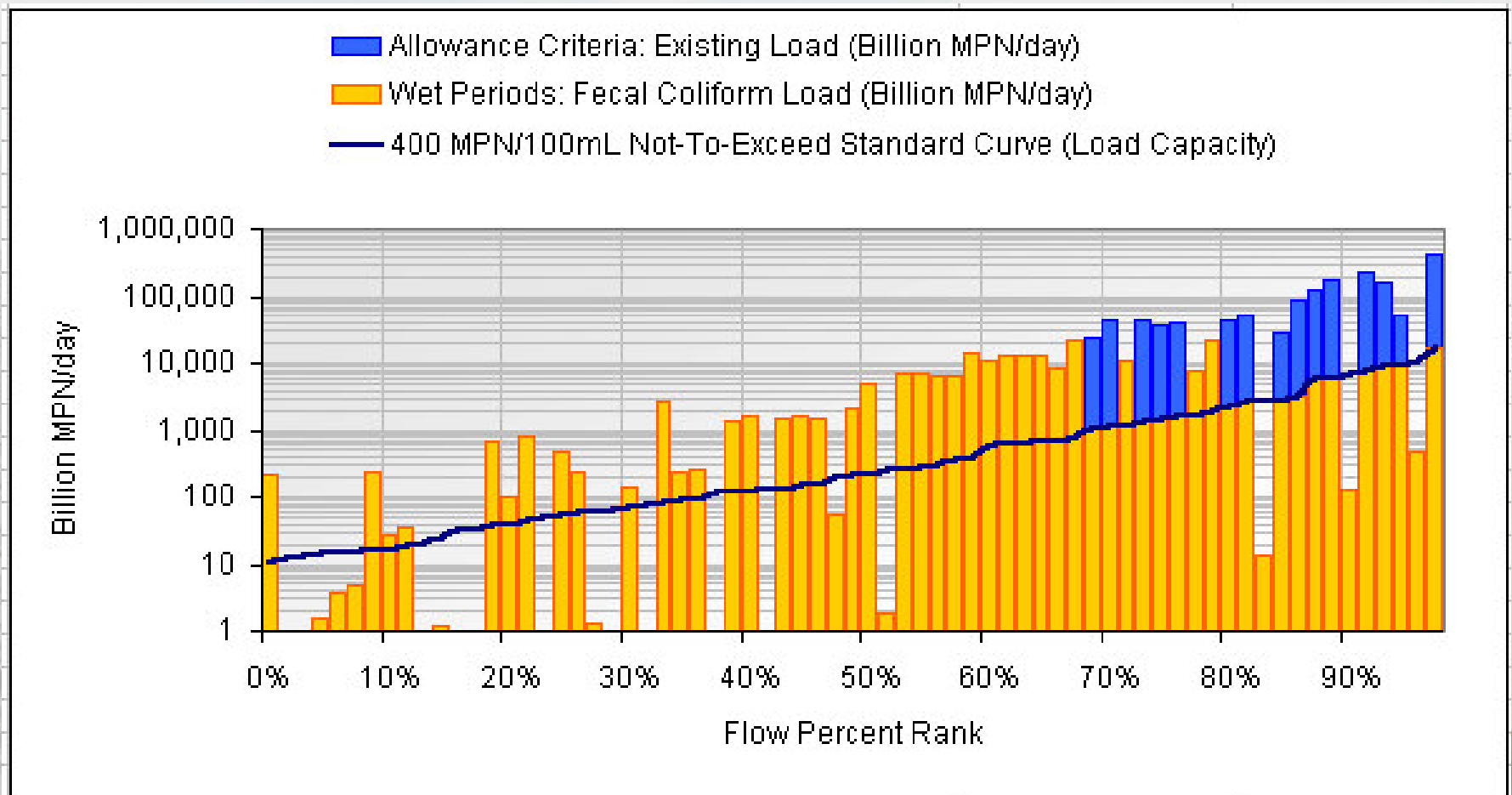


The Reference System Approach

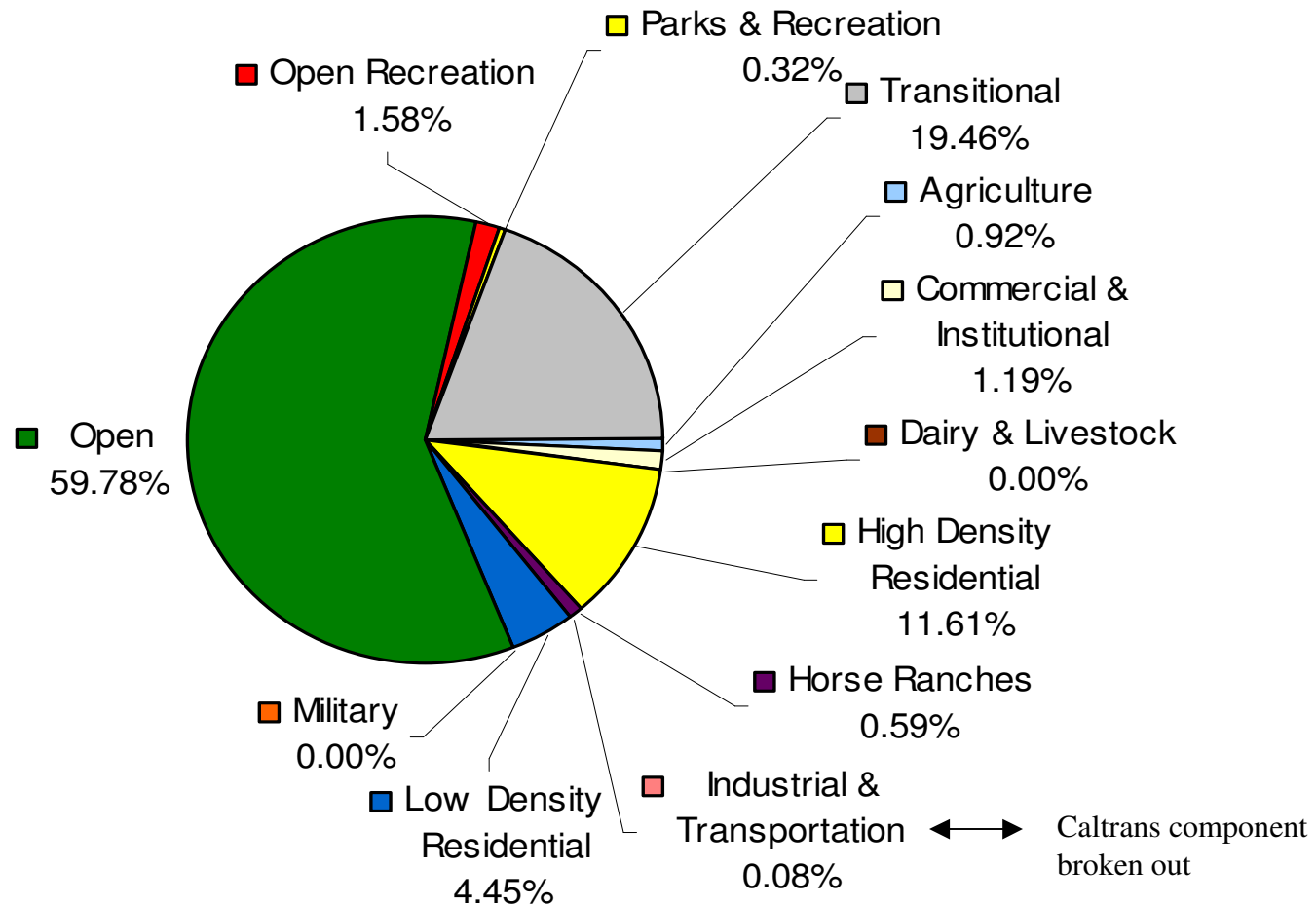
- Used for developing wet weather TMDLs
- Accounts for bacteria loads due to natural sources
- Establishes a 22% allowable exceedance frequency of the single sample water quality objectives
- Used for interim period, only

Load Duration Curve

Aliso Creek Subwatershed (#202); Fecal Coliform



Fecal Coliform Load Distribution – Aliso Creek Watershed



Allocation Categories

Municipal MS4s	Caltrans	Controllable NPS	Non-Controllable NPS
Low Density Residential		Agriculture	Open Rec
High Density Residential		Dairy/Intensive Livestock	Open Space
Commercial/Institutional		Horse Ranches	Water
Industrial/Transportation			
Military			
Parks/Recreation			
Transitional			

Interim Wet Weather TMDLs for Fecal Coliform

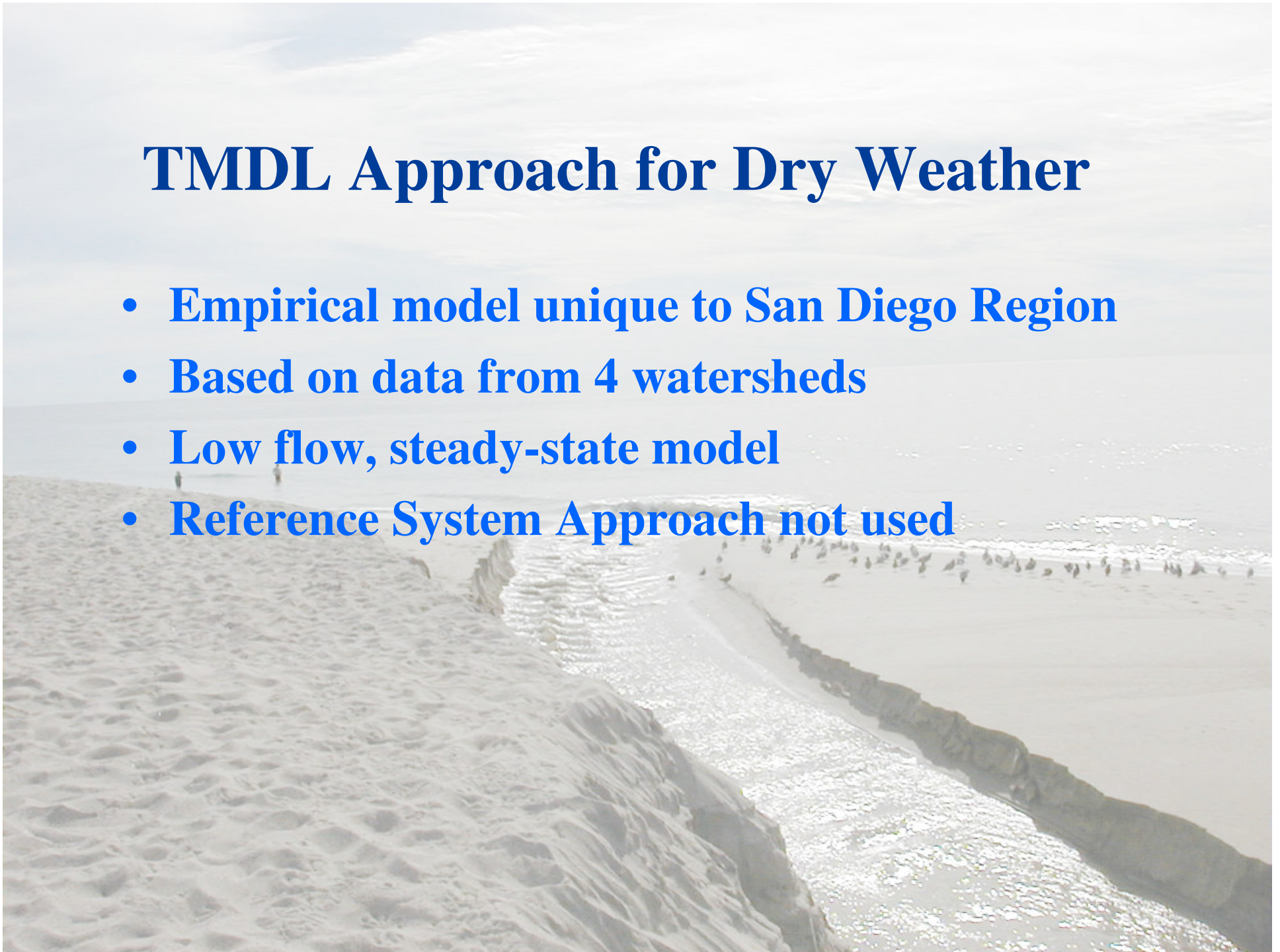
Hydrologic Descriptor	Model Subwatershed	Wet Weather TMDL Results (Billion MPN/year)						
		Existing Load	Total Maximum Daily Load	Percent Reduction	Wasteload Allocation (Municipal MS4s)	Wasteload Allocation (CalTrans)	Load Allocation (Controllable)	Load Allocation (Non-Controllable)
Aliso HSA (901.13) Laguna Beach at Lagunita Place / Blue Lagoon Place at Aliso Beach Aliso Creek	201	1,752,095	1,579,074	9.9%	585,753	241	23,844	968,920
	202							

Final Wet Weather TMDLs for Fecal Coliform

Hydrologic Descriptor	Model Subwatershed	Wet Weather TMDL Results (Billion MPN/year)						
		Existing Load	Total Maximum Daily Load	Percent Reduction	Wasteload Allocation (Municipal MS4s)	Wasteload Allocation (CalTrans)	Load Allocation (Controllable)	Load Allocation (Non-Controllable)
Aliso HSA (901.13) Laguna Beach at Lagunita Place / Blue Lagoon Place at Aliso Beach Aliso Creek	201	1,752,095	84,562	95.2%	0	0	0	968,920
	202							

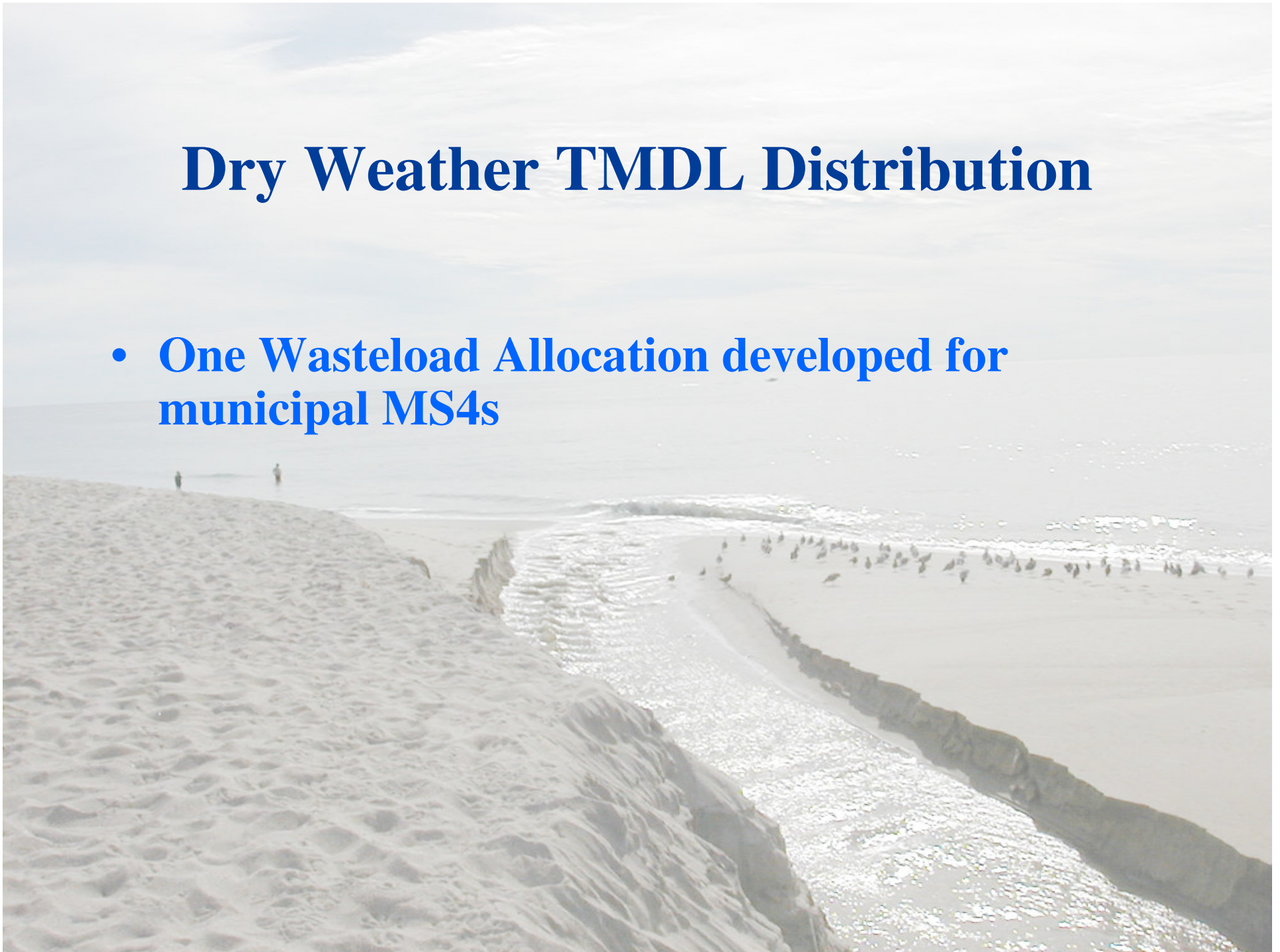
TMDL Approach for Dry Weather

- **Empirical model unique to San Diego Region**
- **Based on data from 4 watersheds**
- **Low flow, steady-state model**
- **Reference System Approach not used**



Dry Weather TMDL Distribution

- One Wasteload Allocation developed for municipal MS4s



Conclusion

- Two modeling platforms
 - Wet weather
 - Wet weather analysis applies Reference System Approach for interim period
 - Allocations distributed to 4 groups
 - Dry weather
 - Allocations developed for MS4s only